

# TC-FX205/FX220

## SERVICE MANUAL



TC-FX205 (Silver Type)

Note: TC-FX205 is a stereo cassette deck unit in SEN-205.



TC-FX220 (Black Type)

TC-FX205:  
US Model  
AEP Model  
UK Model  
E Model

TC-FX220:  
US Model  
Canadian Model  
AEP Model  
UK Model  
E Model

### SPECIFICATIONS

#### TC-FX205

Recording system	4-track 2-channel stereo
Frequency response	DOLBY NR OFF (DIN) With TYPE IV cassette (Sony METAL-ES cassette) 30 - 15,000 Hz ( $\pm 3$ dB)
	With TYPE II cassette (Sony UCX cassette) 30 - 14,000 Hz ( $\pm 3$ dB)
	With TYPE I cassette (Sony HF-S cassette) 30 - 13,000 Hz ( $\pm 3$ dB)
Wow and flutter	0.08% WRMS (NAB) $\pm 0.2\%$ (DIN)

#### General

Dimensions	Approx. 430 x 105 x 250 mm (w/h/d) (17 x 4 $\frac{1}{4}$ x 9 $\frac{1}{8}$ inches)
	incl. projecting parts and controls
Weight	Approx. 2.9 kg (6 lb 7 oz) net

— Continued on next page —

'Dolby' and the double-D symbol are the trade marks of Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

Tape Transport Mechanism Type TCM-C8F

#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT  
À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET  
UNE MARQUE  SUR LES DIAGRAMMES SCHÉ-  
MATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES  
POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REM-  
PLACER CES COMPOSANTS QUE PAR DES PIÈCES  
SONY DONT LES NUMÉROS SONT DONNÉS DANS CE  
MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR  
SONY.

STEREO CASSETTE DECK  
**SONY**<sup>®</sup>



# TC-FX205/FX220

## TC-FX220

Recording system 4-track 2-channel stereo  
 Fast-forward and rewind time Approx. 100 sec. (with C-60 cassette)  
 Bias frequency 105 kHz  
 Signal-to-noise ratio (NAB, at peak level)

Dolby NR switch	OFF	ON
Cassette		
TYPE IV (Sony METAL-ES)	55 dB	65 dB
TYPE II (Sony UCX)	55 dB	63 dB
TYPE I (Sony HF-S)	52 dB	61 dB

Total harmonic distortion 1.0% (with Sony METAL-ES cassettes)

Frequency response  
 DOLBY NR OFF
 

- With TYPE IV cassette (Sony METAL-ES)
  - 20 - 17,000 Hz
  - 30 - 15,000 Hz ( $\pm 3$  dB)
  - 30 - 13,000 Hz ( $\pm 3$  dB, 0 VU recording)
  - 30 - 15,000 Hz (DIN)
- With TYPE II cassette (Sony UCX)
  - 20 - 17,000 Hz
  - 30 - 14,000 Hz ( $\pm 3$  dB)
  - 30 - 14,000 Hz (DIN)
- With TYPE I cassette (Sony HF-S)
  - 20 - 16,000 Hz
  - 30 - 13,000 Hz (DIN)

Wow and flutter 0.08% WRMS (NAB)  
 $\pm 0.2\%$  (DIN)

Inputs  
 Microphone inputs (phone jacks)  
 Sensitivity 0.25 mV (-70 dB)  
 For a low-impedance microphone  
 Line inputs (phono jacks)  
 Sensitivity 77.5 mV (-20 dB)  
 Input impedance 47 kilohms  
 Line outputs (phono jacks)  
 Output level 0.44 V (-5 dB) at load  
 impedance 50 kilohms  
 Load impedance over 10 kilohms  
 Headphone output (stereo phone jack)  
 Output level -28 dB at a  
 load impedance of 8 ohms

Outputs  
 General  
 Power requirements
 

- AEP model: 220 V ac, 50/60 Hz  
 $(240$  V ac adjustable by authorized Sony personnel)
- UK model: 240 V ac, 50/60 Hz  
 $(220$  V ac adjustable by authorized Sony personnel)
- US, Canadian model: 120 V ac, 60 Hz
- E model: 120 or 220-240 V ac adjustable, 50/60 Hz

 Power consumption 8 watts  
 Dimensions Approx. 430 x 105 x 250 mm (w/h/d)  
 $(17 \times 4\frac{1}{4} \times 9\frac{7}{8}$  inches)  
 including projecting parts and controls  
 Weight Approx. 3.3 kg (7 lbs 5 oz)

## SAFETY CHECK-OUT (US Model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

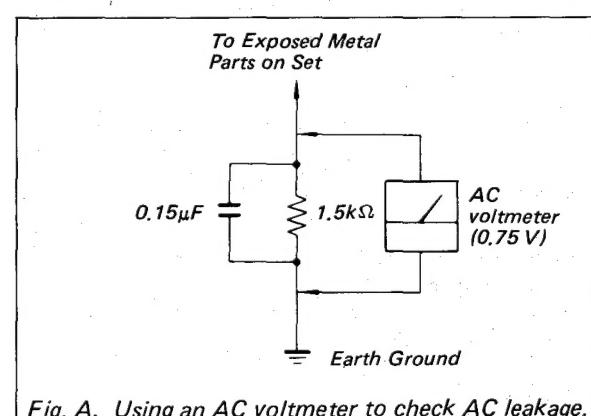
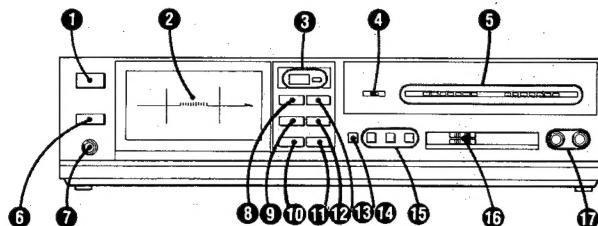


Fig. A. Using an AC voltmeter to check AC leakage.

## FUNCTION OF CONTROLS



① **POWER** switch (TC-FX220 only)

② **Cassette holder**

③ **TAPE COUNTER** and **RESET** button

The tape counter provides a numerical reference point while recording which can be used to index a recorded cassette. To reset to zero, press the **RESET** button.

④ **REC** indicator

This indicator lights when the **REC** button is pressed.

⑤ **LED PEAK LEVEL METERS**

These meters show the peak input level of each channel during recording, and recorded levels in the playback mode.

⑥ **▲ (eject) button**

Press this button to open the cassette holder.

⑦ **HEADPHONES** jack (stereo phone jack)

(TC-FX220 only)

⑧ **◀◀ REW (rewind) button**

Press this button to rewind the tape.

⑨ **■ STOP button**

⑩ **● REC (record) button**

⑪ **II PAUSE button**

⑫ **▶▶ FWD (forward) button**

⑬ **▶▶ FF (fast-forward) button**

Press this button to advance the tape rapidly.

⑭ **DOLBY NR\*** switch

To record with the Dolby NR (Noise Reduction) process, depress this switch (→ ON). To record without the Dolby NR process, press to release this switch (↔ OFF). When playing back, set this switch to the same position used in recording.

\* "Dolby" and the double-D symbol are trade marks of the Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

⑮ **TAPE select buttons**

Depress one of the TAPE select buttons, depending on which type of tape you use. The optimum bias current adjustment for recording and the optimum equalization adjustment for both recording and playback are set.

⑯ **REC LEVEL (recording level) controls**

These controls adjust the recording level.

⑰ **MIC jacks** (phone jack)

Any low-impedance microphone equipped with a phone plug may be used.

## Difference between TC-FX205 and TC-FX220.

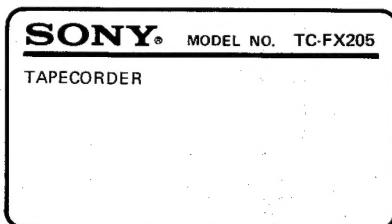
	TC-FX205	TC-FX220
Power Transformer (T901)	X	○
Headphones Jack (J302)	X	○
Headphone Amp. (IC302)	X	○
Power Supply Connector (CN304)	○	X

TC-FX205 is a stereo cassette deck unit in SEN-205 (stereo component system).

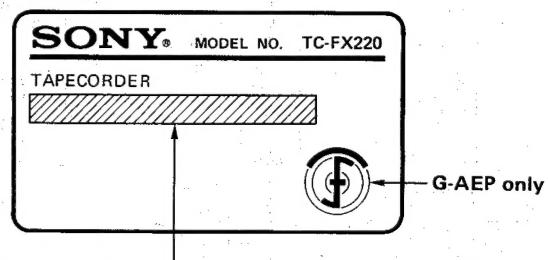
## MODEL IDENTIFICATION

— Specification label on jack plate —

TC-FX205



TC-FX220



US, Canadian model: AC: 120V 60 Hz 8W

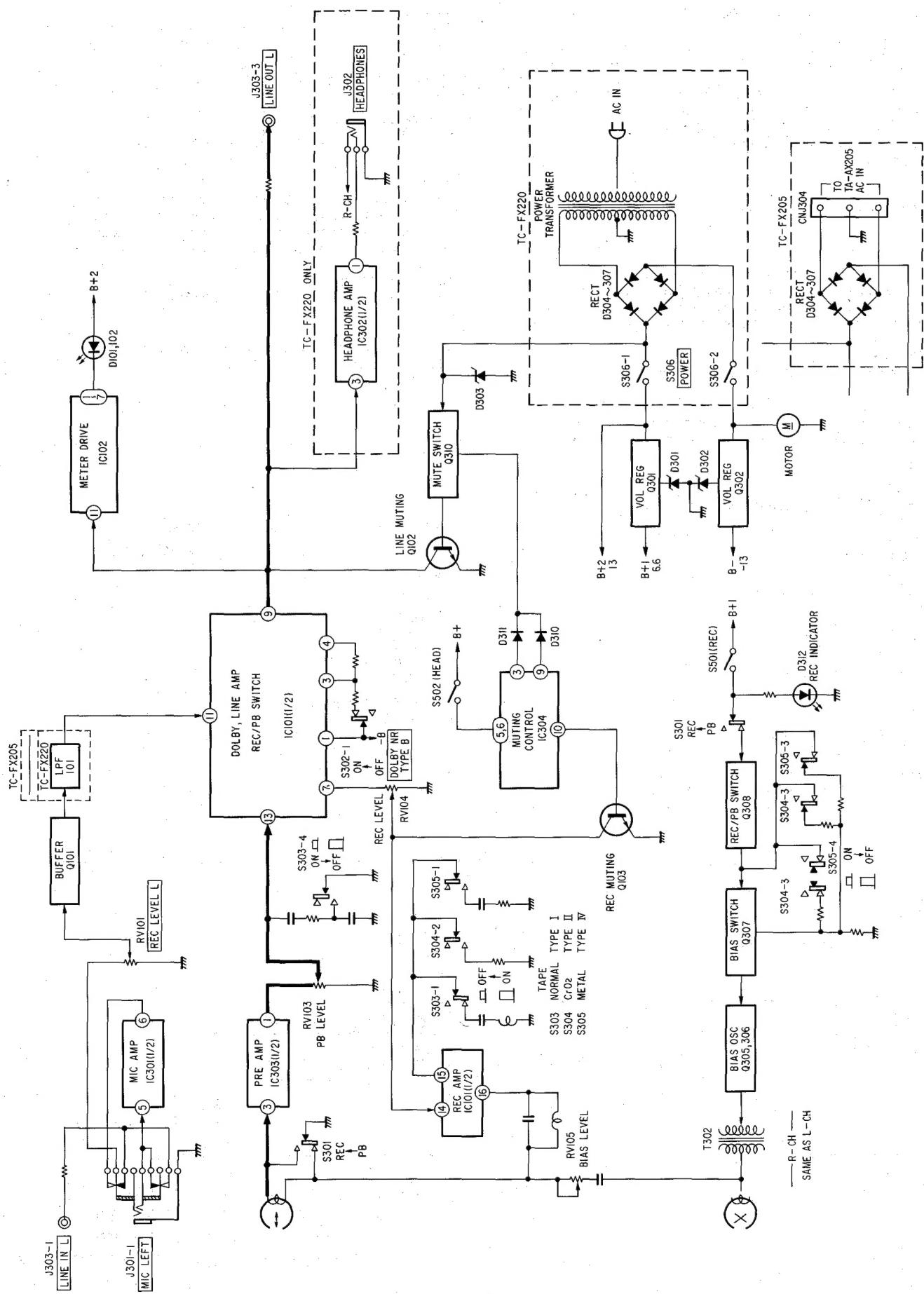
AEP model: AC: 220V 50/60 Hz 8W

UK model: AC: 240V 50/60 Hz 8W

E model: AC: 120, 220, 240V 50/60 Hz 8W

## **SECTION 1**

# **BLOCK DIAGRAM**

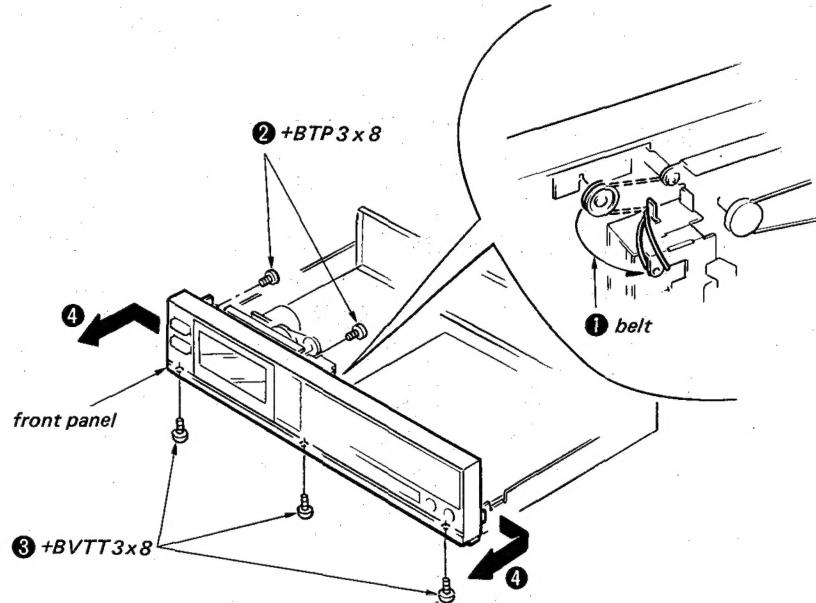


## SECTION 2 DISASSEMBLY

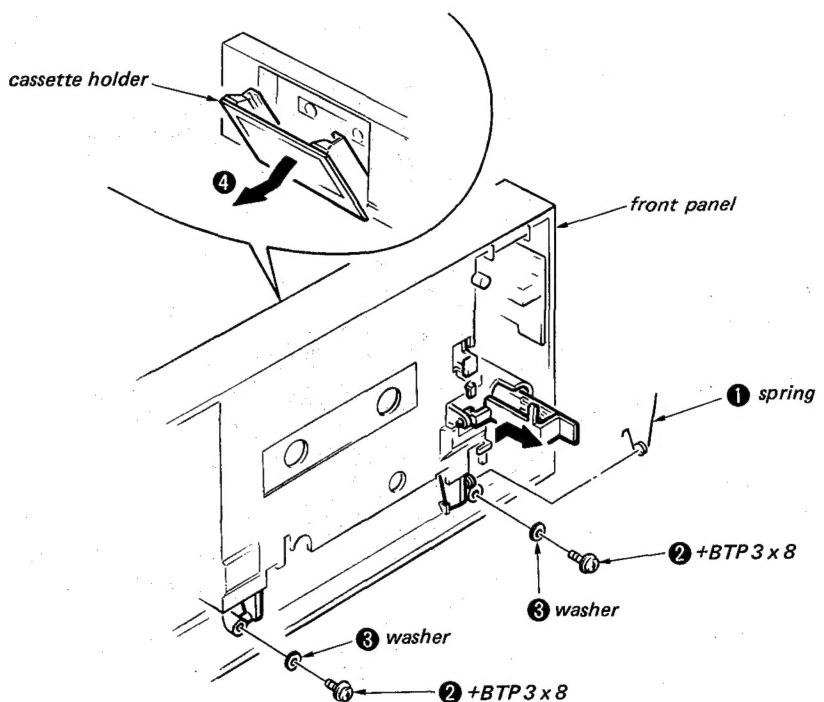
- Follow the disassembly procedure in the numerical order given.

Remove the case.  
(four screws)

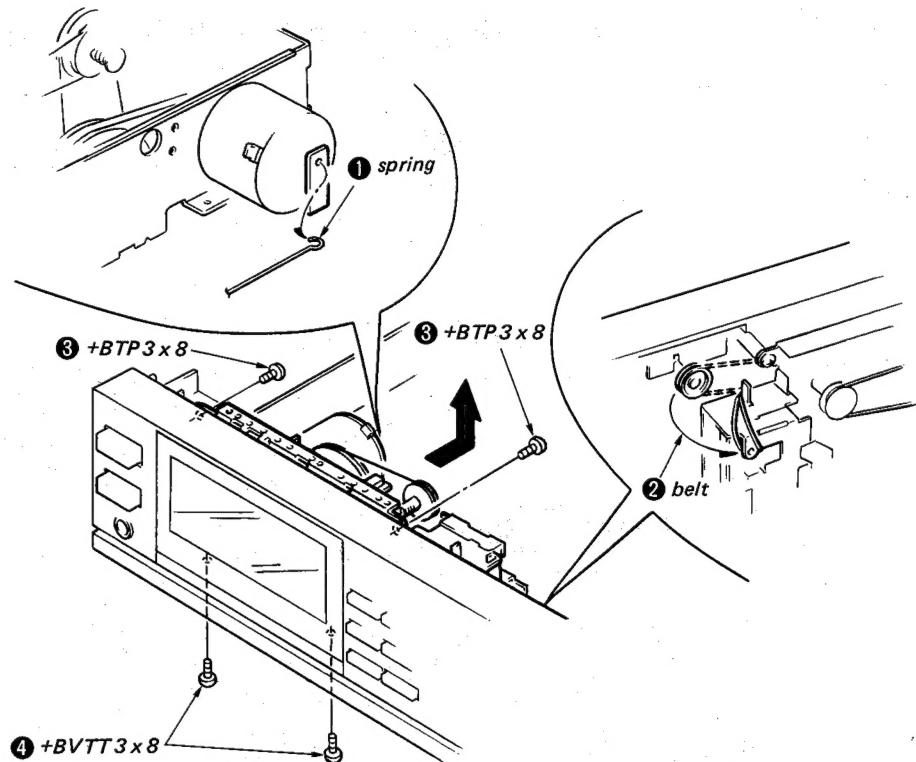
### FRONT PANEL



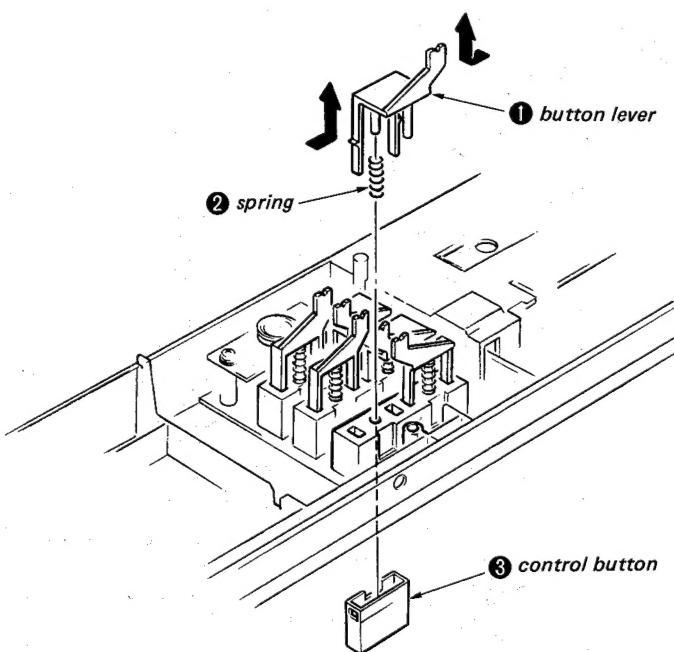
### CASSETTE HOLDER

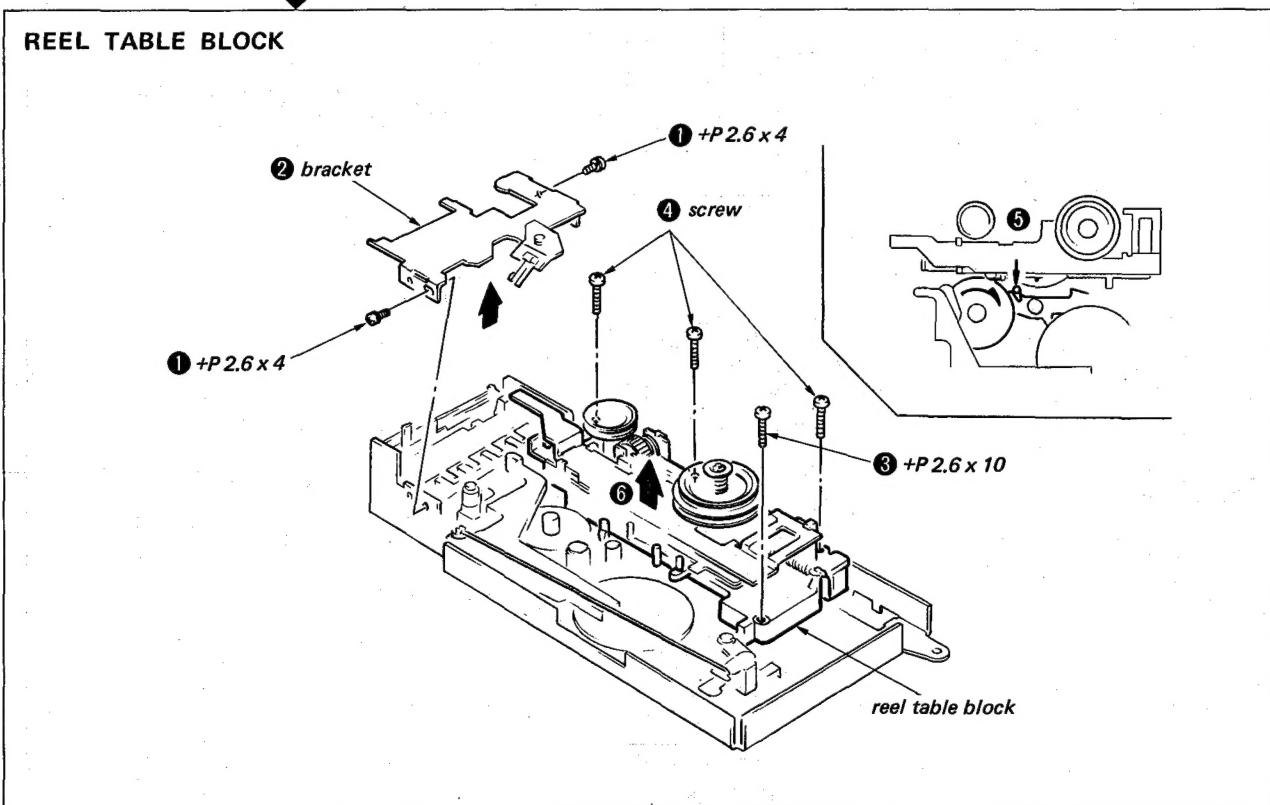
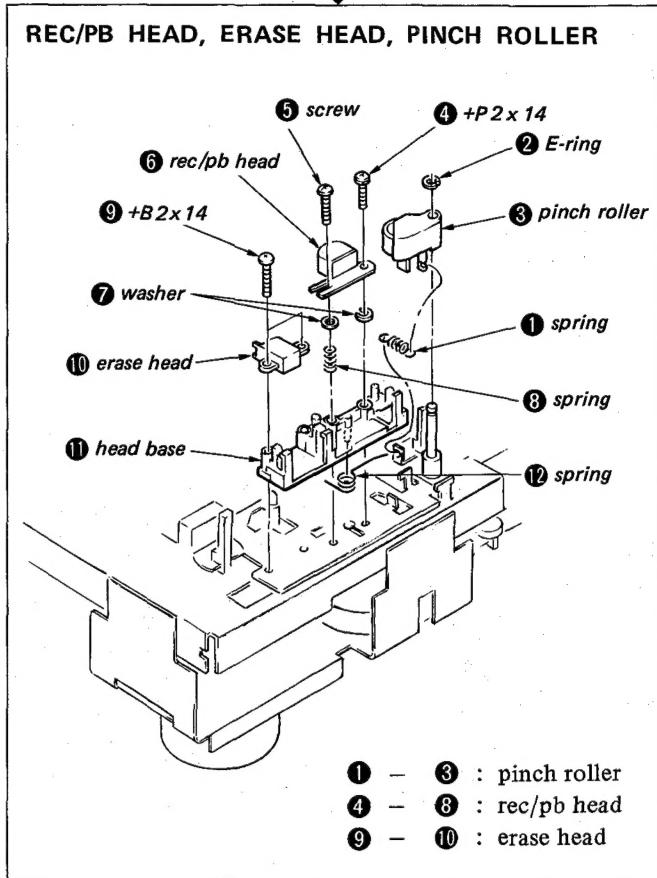
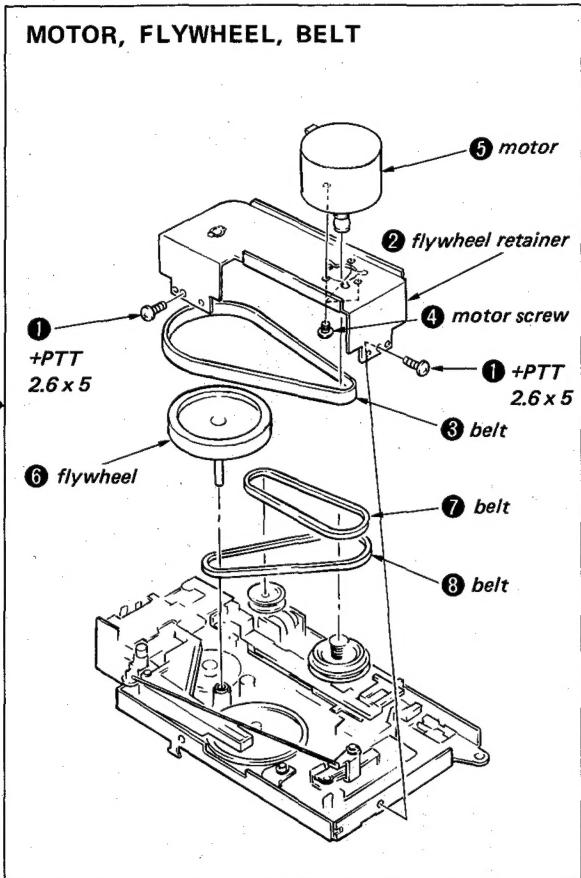


## TRANSPORT MECHANISM



## CONTROL BUTTON





SECTION 3  
ADJUSTMENTS

## 3-1. MECHANICAL ADJUSTMENTS

No mechanical adjustments applied to this unit.

## ● Torque Measurement

Mode	Torque Meter	Torque
FWD	CQ-102C	40 – 70 g·cm (0.55 – 0.97 oz·inch)
FF	CQ-201B	70 – 150 g·cm (0.97 – 2.07 oz·inch)
REW	CQ-201B	70 – 150 g·cm (0.97 – 2.07 oz·inch)
FWD back tension	CQ-102C	2 – 6 g·cm (0.028 – 0.083 oz·inch)

## 3-2. ELECTRICAL ADJUSTMENTS

**Note:** The adjustment should be performed in the order given in this service manual.

The adjustments should be performed for both L-CH and R-CH.

## ● Set the TAPE switches according to the tape as follows.

Tape	Tape Switch
CS-17	TYPE I NORMAL
CS-26	TYPE II CrO <sub>2</sub>
CS-40	TYPE IV METAL

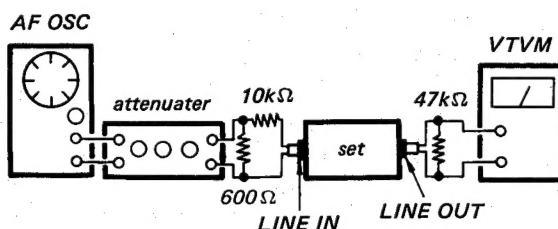
## ● Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch: OFF  
TAPE SELECT switch: TYPE I NORMAL

## ● Standard Record:

Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

## — Record Mode —



## Standard Input Level

	MIC	LINE IN
source impedance	300Ω	10kΩ
input level	0.77 mV (-60 dB)	0.25 V (-10 dB)

## Standard Output Level

	HEADPHONES	LINE OUT
load impedance	8Ω	47kΩ
output level	31 mV (-28 dB)	0.435 V (-5 dB)

## Record/playback Head Azimuth Adjustment

## Procedure:

## 1. Mode: playback

test tape  
P-4-A063  
(6.3 kHz, -10 dB)

47kΩ

VTVM

LINE OUT

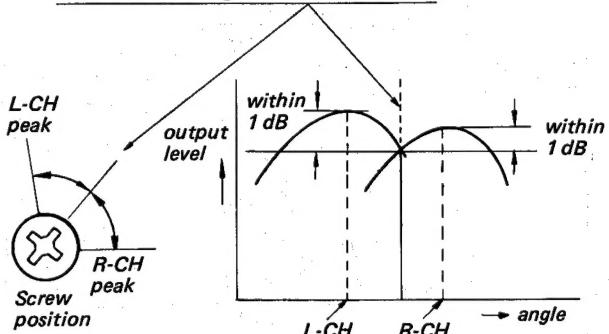
set

47kΩ

VTVM

LINE OUT

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.



## 3. Phase Check

## Mode: playback

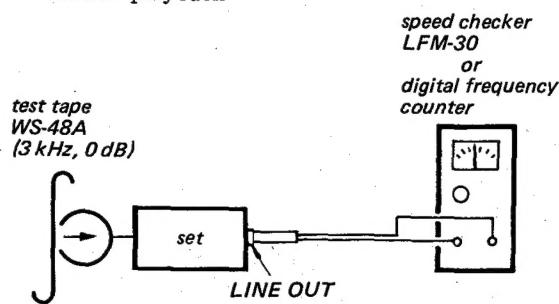
test tape  
P-4-A063  
(6.3 kHz, -10 dB)

47kΩ

oscilloscope

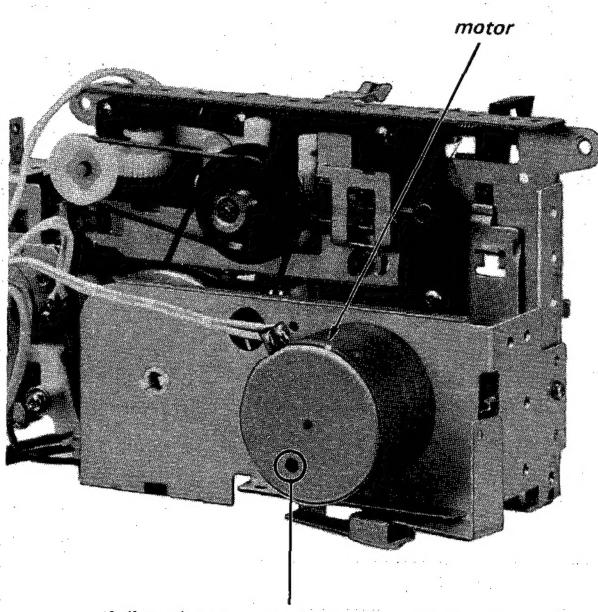
**Tape Speed Adjustment****Procedure:**

Mode: playback

**Specification:**

Speed checker	Digital frequency counter
$\pm 0.3\%$	2,990 ~ 3,010 Hz

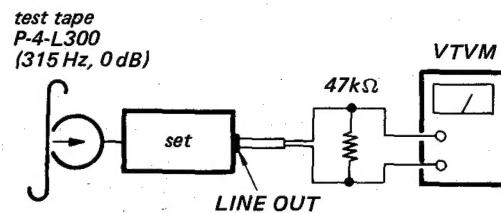
Frequency difference between the beginning and the end of the tape should be within 0.8% (25 Hz).

**Adjustment Location:**

Adjust the tape speed by using screwdriver.

**Playback Level Adjustment****Procedure:**

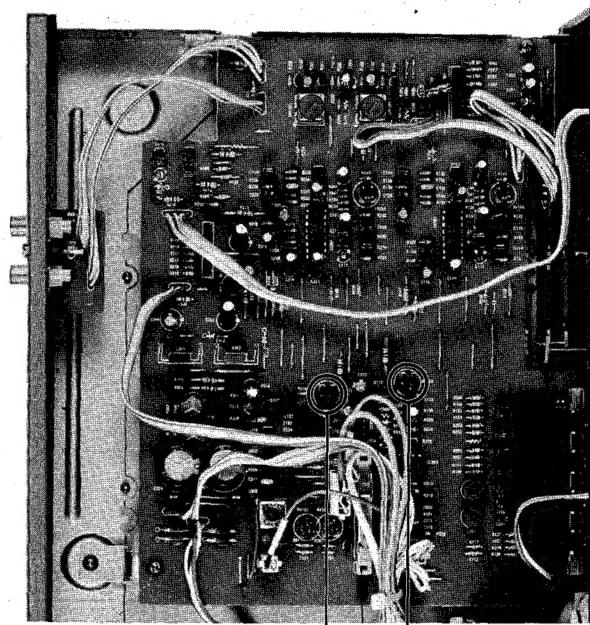
Mode: playback

**Specification:**

LINE OUT level:  $0.45 \sim 0.50\text{ V}$   
 $(-4.9 \sim -3.9\text{ dB})$

Level difference between channels:  
 less than  $0.5\text{ dB}$

Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

**Adjustment Location:**

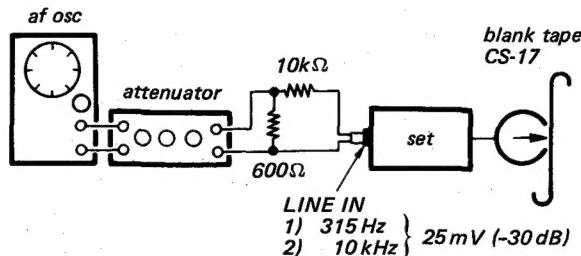
## Record Bias Adjustment

### Setting:

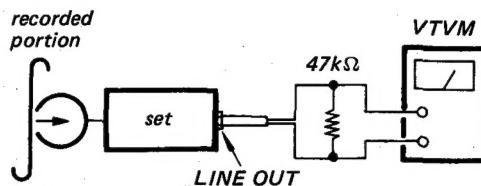
REC LEVEL control: standard record  
(See page 8)

### Procedure:

1. Mode: record



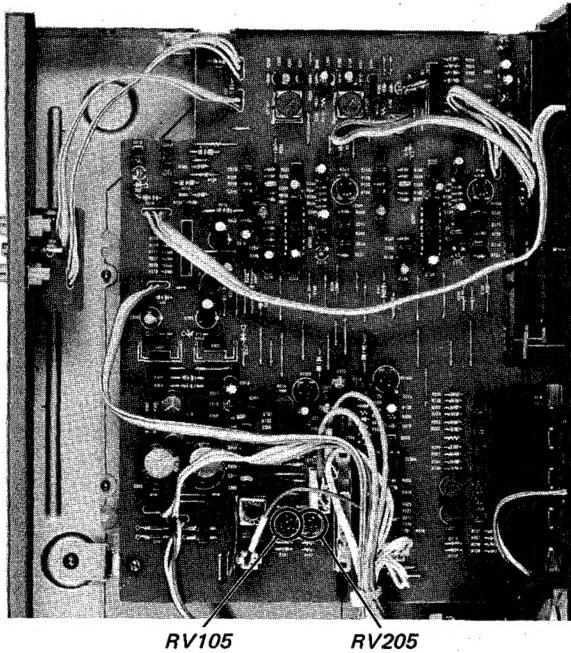
2. Mode: playback



Play back the tape recorded in step 1.

Confirm that the LINE OUT level of 10 kHz signal is 0 dB relative to that of 315 Hz. If not, adjust the RV105 (L-CH), RV205 (R-CH) and repeat steps 1 and 2.

### Adjustment Location:



RV105  
(L-CH)

RV205  
(R-CH)

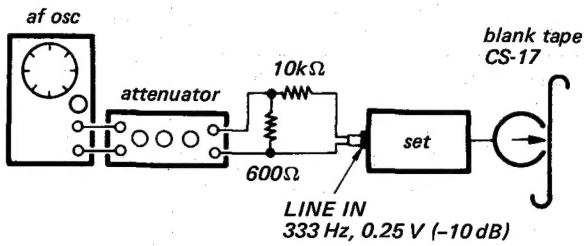
## Record Level Adjustment

### Setting:

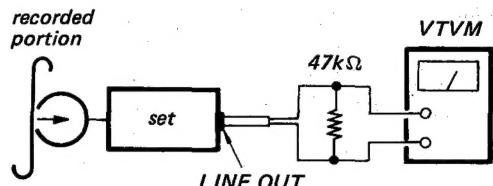
REC LEVEL control: standard record  
(See page 8)

### Procedure:

1. Mode: record



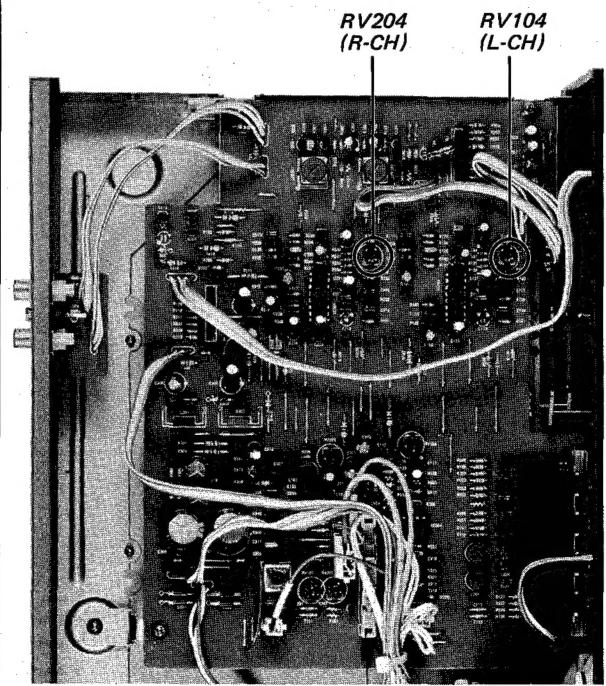
2. Mode: playback



### Specification:

LINE OUT level: 0.41 ~ 0.46 V  
(-5.5 ~ -4.5 dB)

### Adjustment Location:

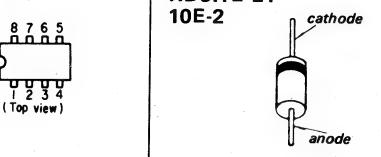
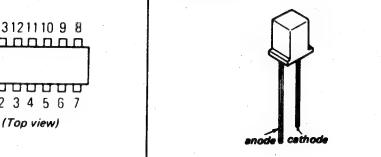
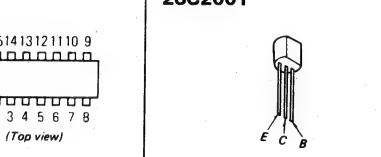
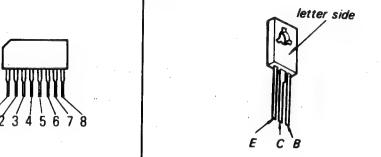
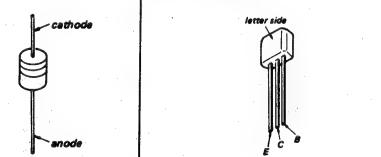


RV204  
(R-CH)

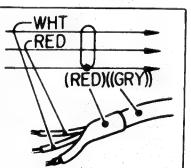
RV104  
(L-CH)

## SECTION 4 DIAGRAMS

### • Semiconductor Lead Layouts

NJM4562D-D	HZ7C1L RD5.1E-L1 10E-2
	
MB84011B	GL-9PR4
	
CX174-2 IR2E02	2SA733-P 2SC2001
	
M5218L	2SD809-K
	
1SS202-1	2SC2785-E
	

### Note:

- Color code of sleeving over the end of the jacket.
- 
- : parts extracted from the component side.
  - : parts extracted from the conductor side.
  - : indicates side identified with part number.
  - : signal path
  - : L-CH signal path
  - : R-CH signal path
  - : B+ pattern
  - : B- pattern

### 4-1. MOUNTING DIAGRAM

#### — Conductor —

A

Q	IC102	IC202	310
D	102	101	102

B

C

D

E

F

G

H

I

J

K

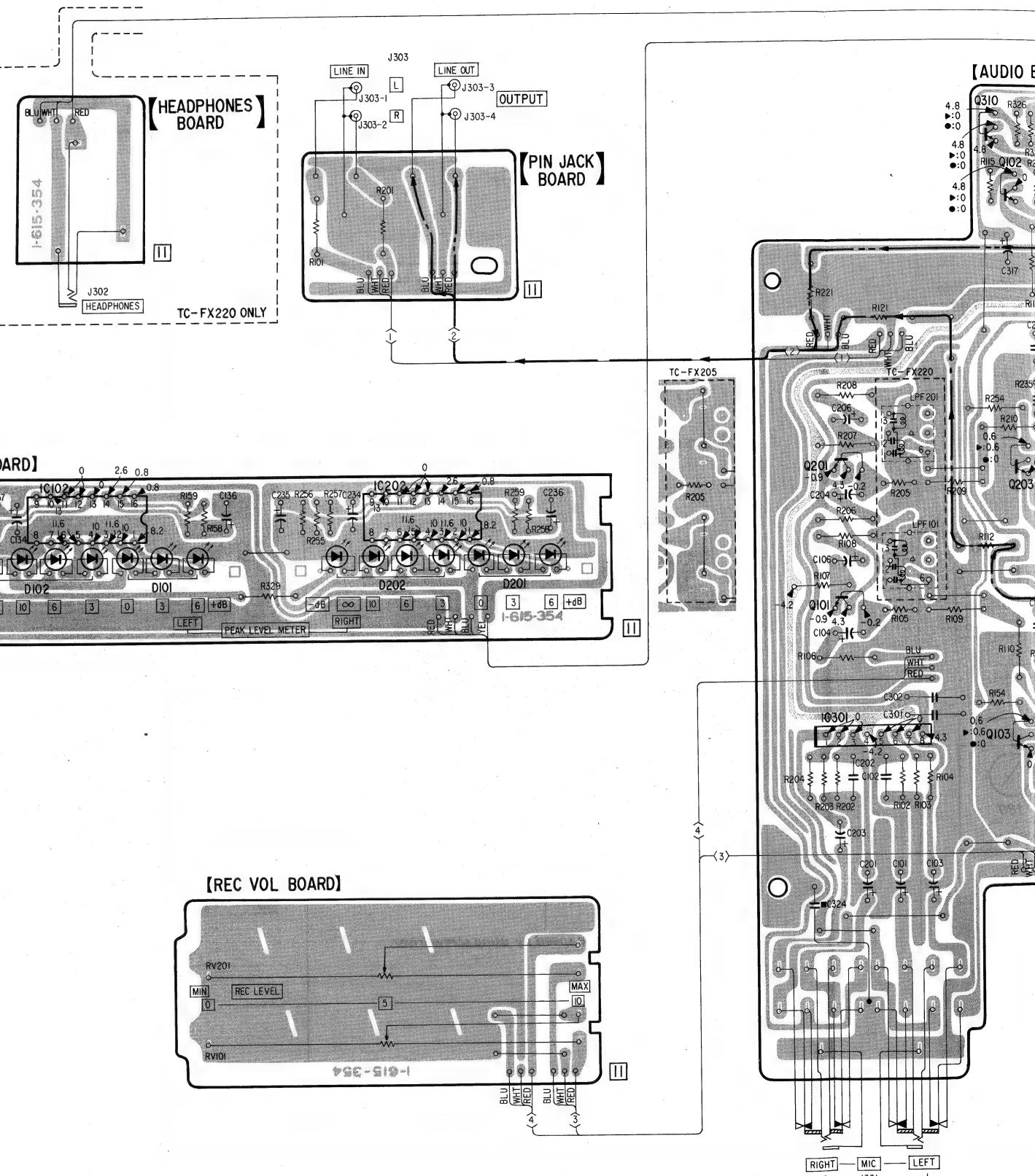
L

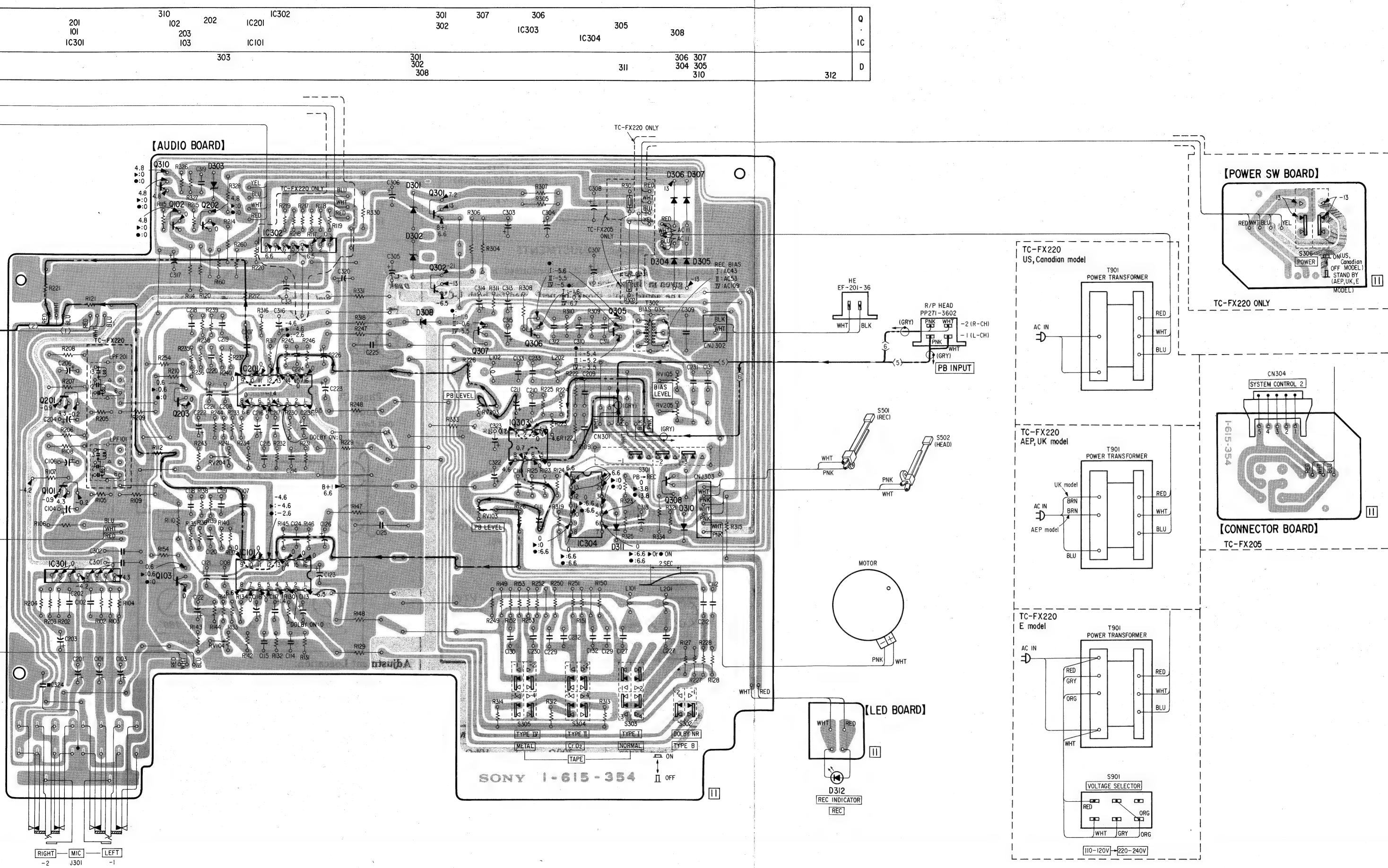
M

N

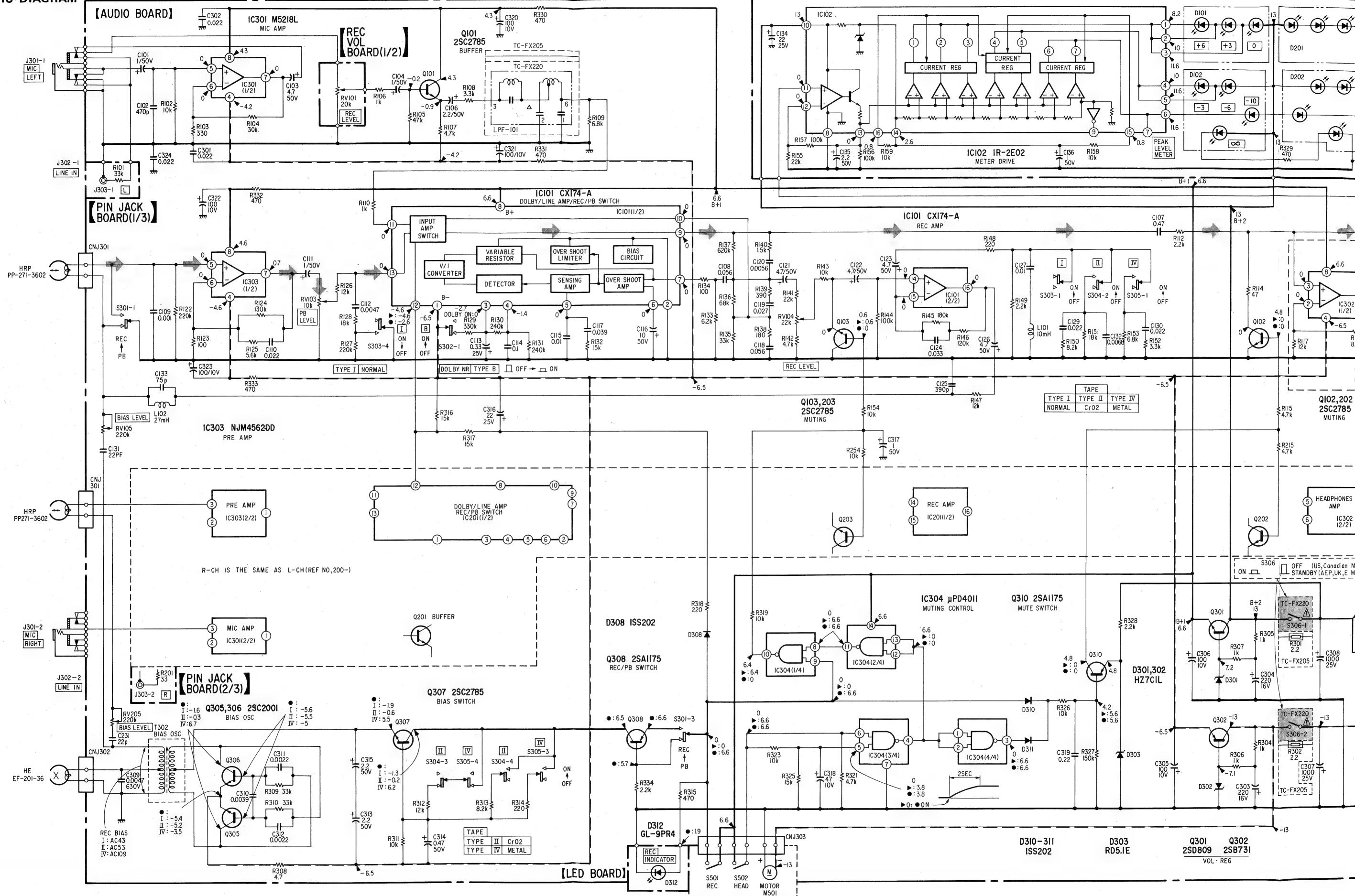
O

P





#### 4-2. SCHEMATIC DIAGRAM



15

16

17

18

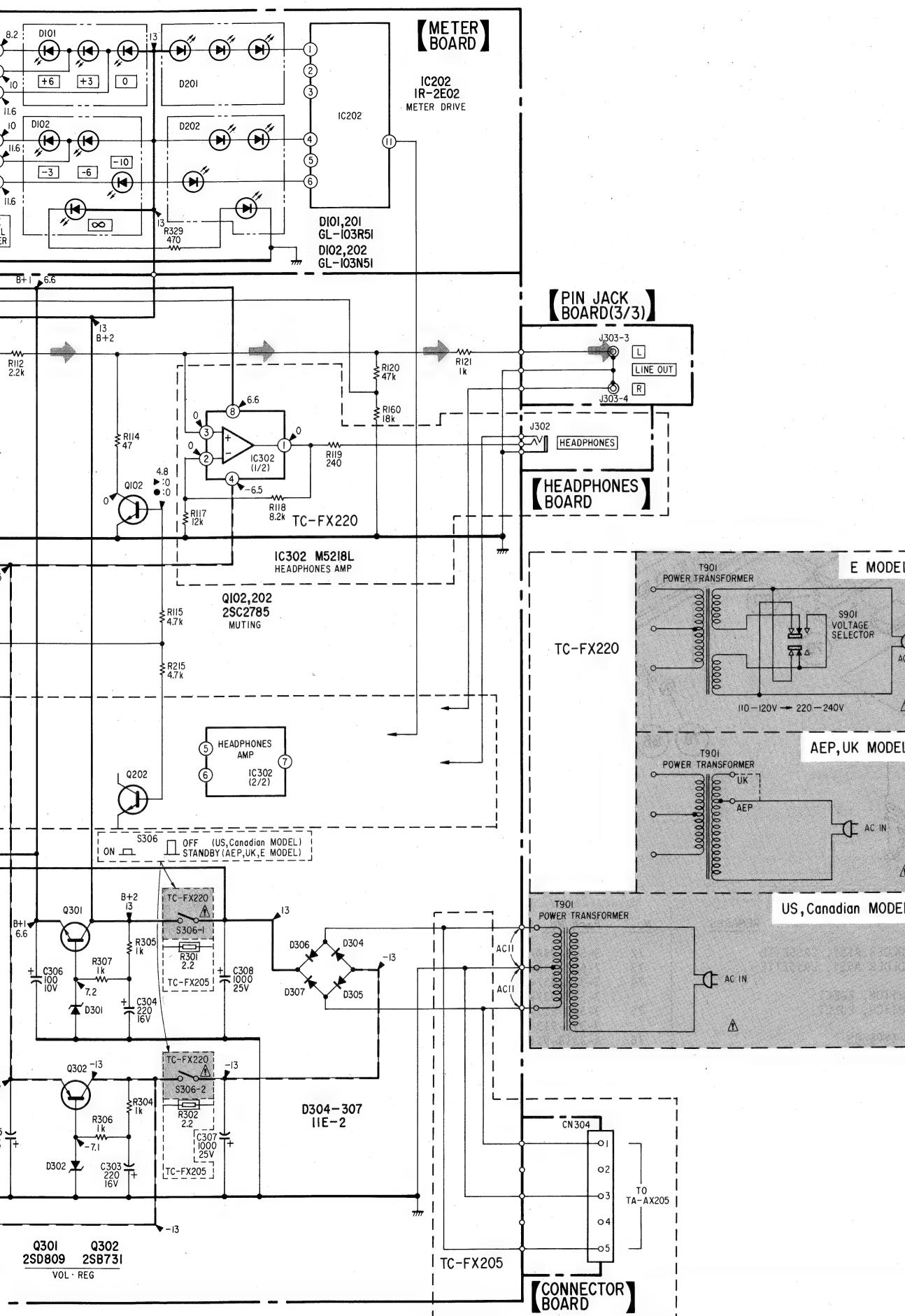
19

20

21

22

23



A

B

C

D

E

F

G

H

I

J

**Note:**

- All capacitors are in  $\mu$ F unless otherwise noted.  $\mu$ F:  $\mu$ F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4$ W or less unless otherwise specified.
- : signal path.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- △ : internal component.
- : B+ bus.
- - - : B- bus.
- : adjustment for repair.
- AC voltage readings in the bias oscillator with a VTVM.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with VOM (50 k $\Omega$ /V).
- no mark : STOP
- ▶ : PLAY
- : REC
- Voltage variations may be noted due to normal production tolerances.
- Switches:

Ref. No.	Switch	Position
S301	RECORD/PLAY BACK	PLAY BACK
S302	DOLBY NR	OFF
S303	TYPE I NORMAL	ON
S304	TYPE II CrO <sub>2</sub>	OFF
S305	TYPE IV METAL	OFF
S306	POWER	{ OFF
S501	RECORD	STANDBY
S502	HEAD	OFF
S901	VOLTAGE SELECT	110-120V

**Note:** Voltages are measured with a VOM (50k $\Omega$ /V).**Note:** The components identified by shading and mark are critical for safety. Replace only with part number specified.**Note:** Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

## SECTION 5

TC-FX205/FX220

TC-FX205/FX220

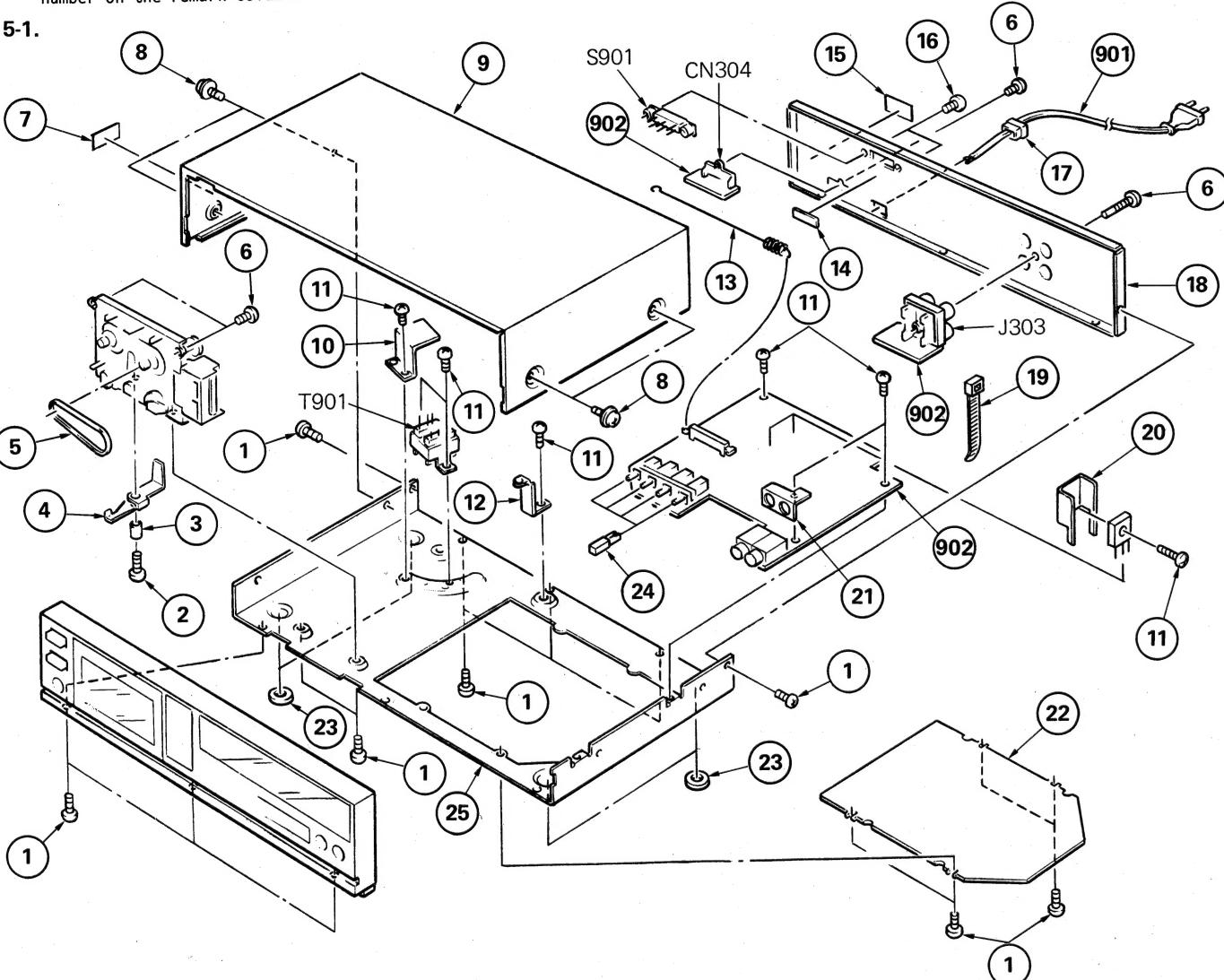
## EXPLODED VIEWS AND PARTS LIST

NOTE:  
The mechanical parts with no reference number in the exploded views are not supplied.

Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

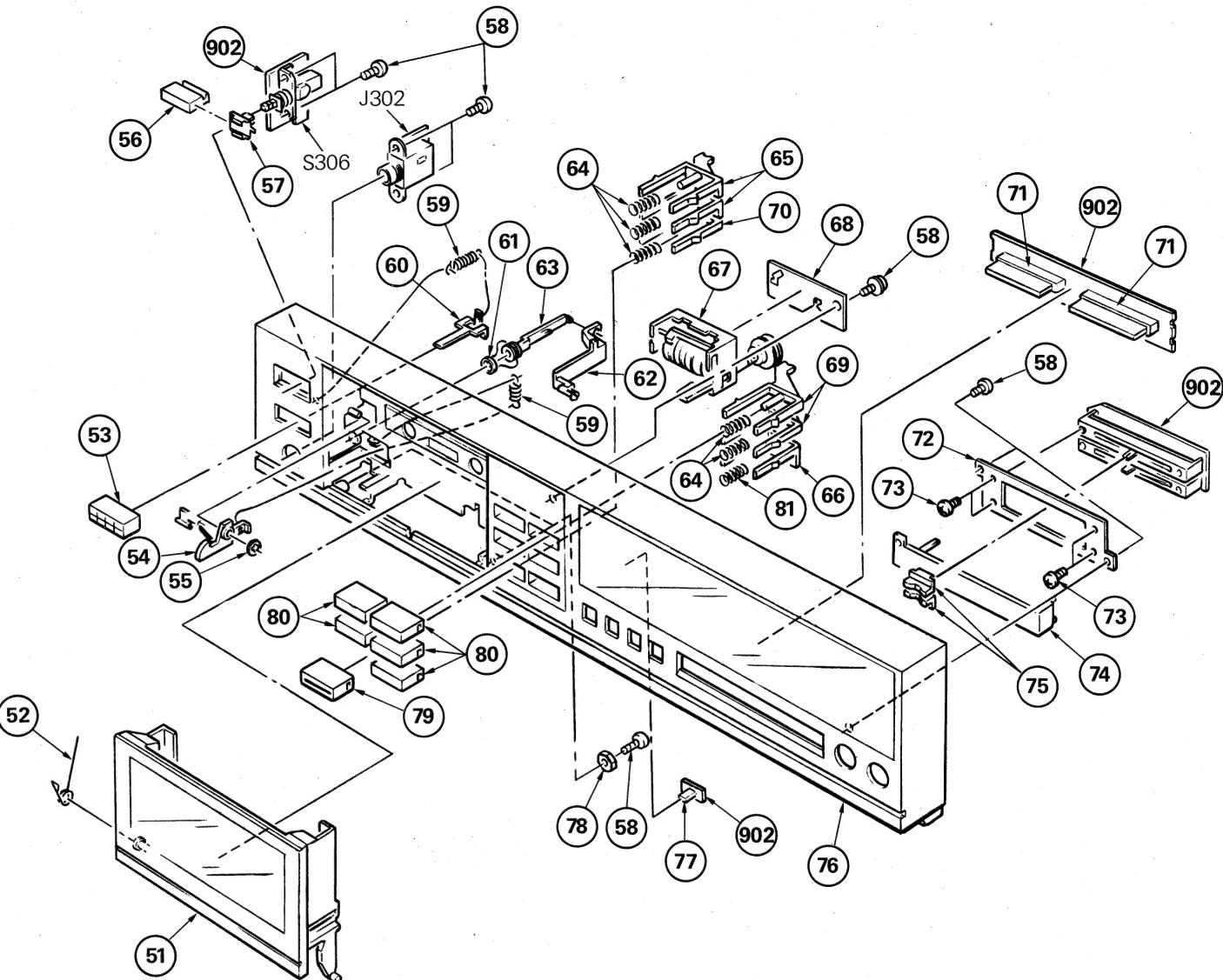
The construction parts of an assembled part are indicated with a callout number on the remark column.

5-1.

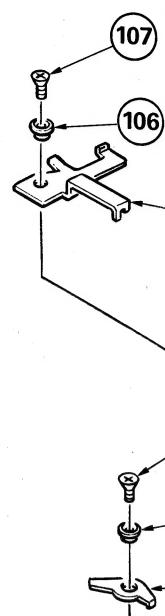


No.	Part No.	Description	REMARKS
1	7-685-872-01	SCREW BVTT 3X8	
2	7-685-873-01	SCREW +BVTT 3X10 (S)	
3	*3-318-942-01	SPACER, REC LEVER	
4	*3-318-935-01	LEVER, REC	
5	3-530-181-XK	BELT, DETCTNG	
6	7-685-146-19	SCREW +BTP 3X8 TYPE2 N-S	
7	3-703-079-21	(TC-FX220:UK)...LABEL, CAUTION (BACK)	
8	4-889-321-01	(SILVER)...SCREW	
9	4-889-321-11	(BLACK)...SCREW	
10	4-904-474-21	(SILVER)...CASE	
11	4-904-474-31	(BLACK)...CASE	
12	*3-323-464-01	(TC-FX220)...INSULATOR	
13	7-685-871-01	SCREW +BVTT 3X6 (S)	
14	*3-318-936-01	BRACKET, PC BOARD	
15	3-318-949-01	SPRING, TENSION	
	*3-701-030-00	LABEL, SERIAL NUMBER	
	*3-318-929-01	(TC-FX220:AEP)...LABEL, MODEL NUMBER	
	*3-318-930-01	(TC-FX220:UK)...LABEL, MODEL NUMBER	
	*3-318-945-01	(TC-FX220:G-AEP)...LABEL, MODEL NUMBER	
	*4-302-759-00	(TC-FX205/220:US,Canadian,E)	
		...LABEL, SERIAL NUMBER	

5-2.

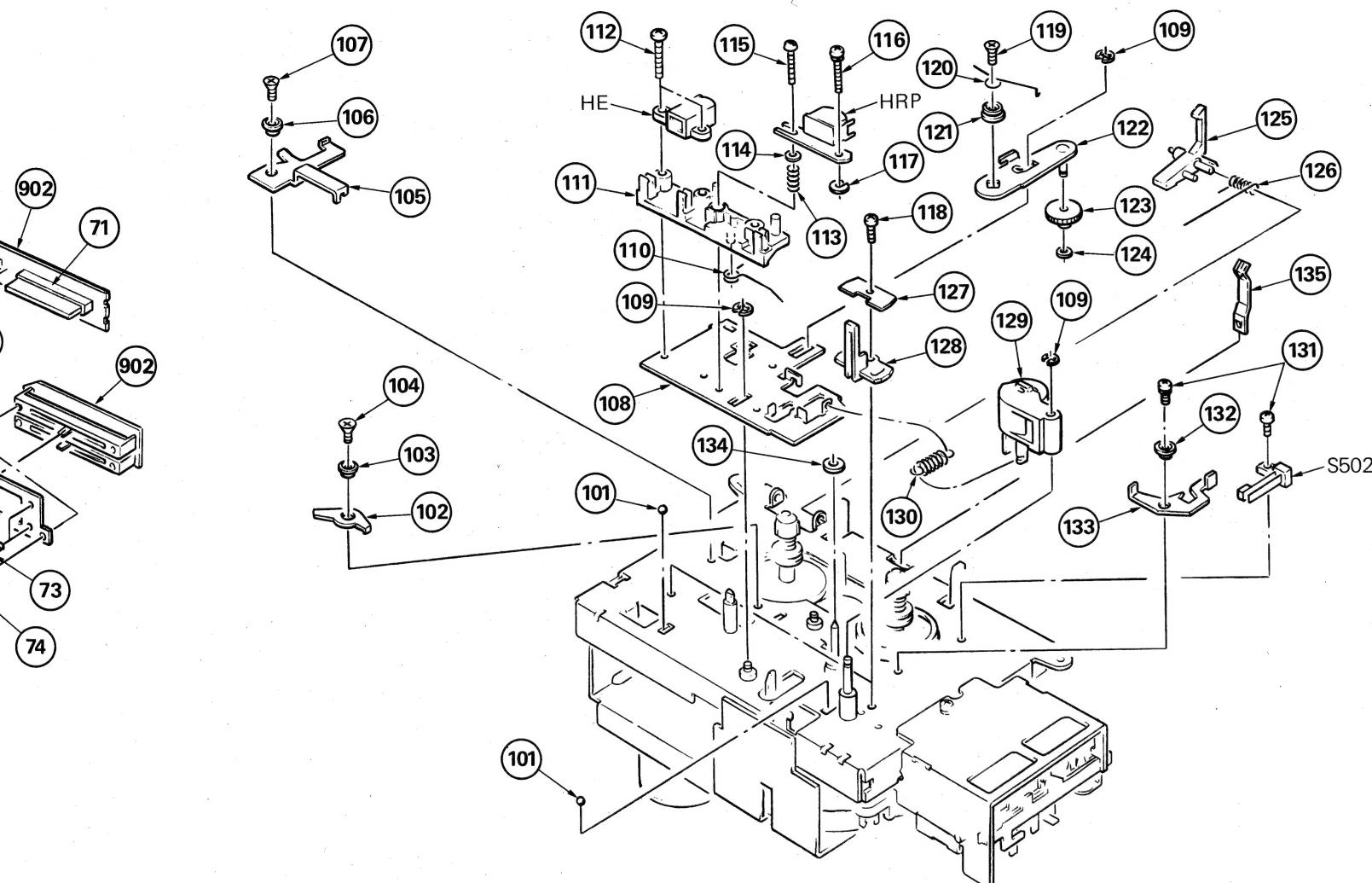


5-3.

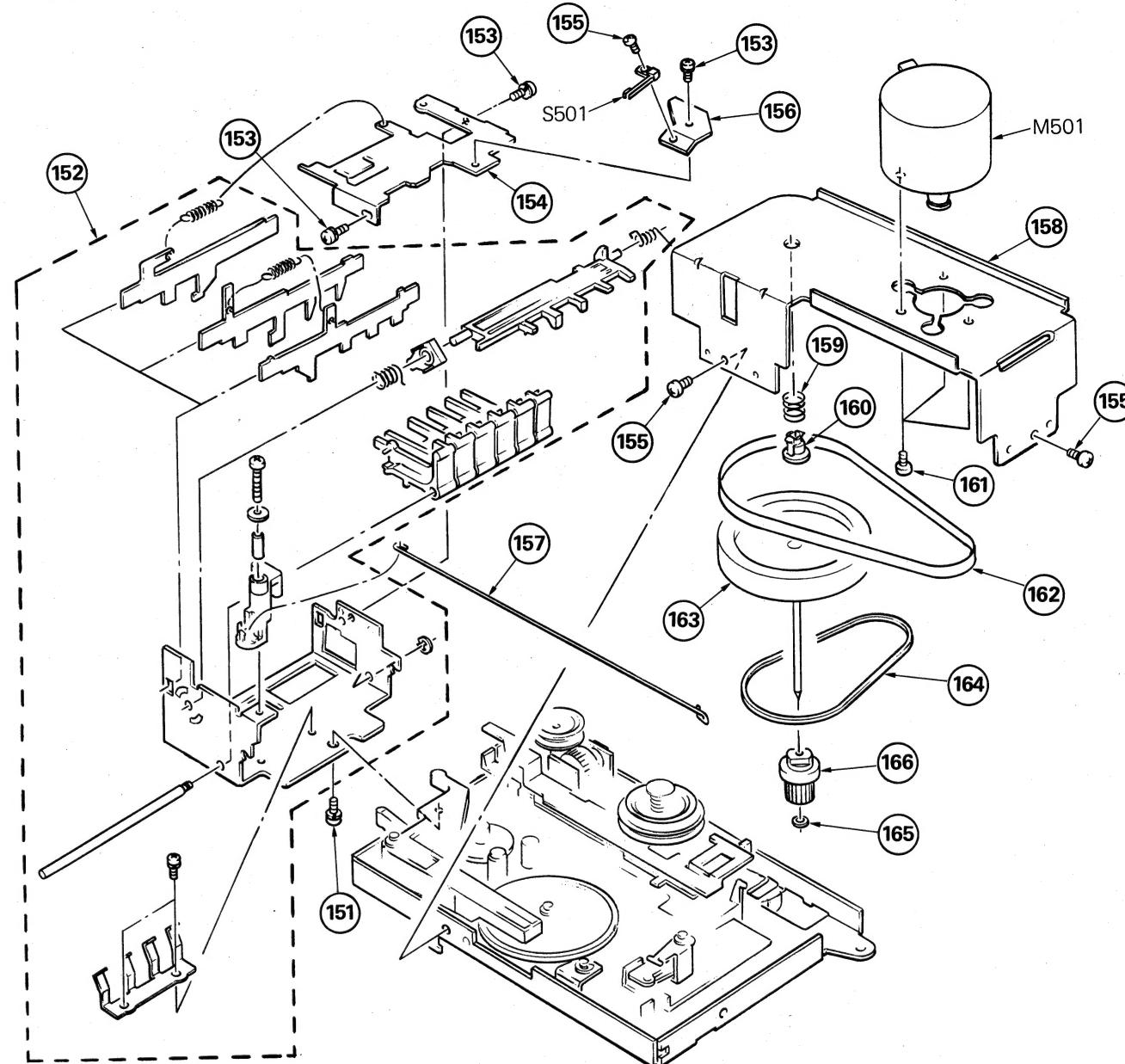


No.	Part No.	Description	REMARKS	No.	Part No.	Description	REMARKS	No.	Part No.	Description	REMARKS
51	X-3318-917-1	(SILVER)...HOLDER ASSY, CASSETTE		72	3-318-940-01	BRACKET, CONTROL		101	7-671-11		
	X-3318-918-1	(BLACK)...HOLDER ASSY, CASSETTE		73	7-682-545-09	SCREW +B 3X4		102	3-596-15		
52	3-318-954-01	SPRING		74	3-318-937-01	(SILVER)...PLATE, ORNAMENTAL, CONTROL		103	3-596-14		
53	3-304-419-00	(SILVER)...BUTTON, EJECT			3-318-937-11	(BLACK)...PLATE, ORNAMENTAL, CONTROL		104	3-596-16		
	3-304-419-31	(BLACK)...BUTTON, EJECT		75	3-313-213-21	(SILVER)...BUTTON, REC CONTROL		105	*3-596-16		
54	*3-318-953-01	LEVER, LOCK		76	3-313-213-31	(BLACK)...BUTTON, REC CONTROL		106	3-596-14		
55	7-624-190-11	STOP RING 3, TYPE-CS			X-3318-911-1	(SILVER)(TC-FX220:AEP,UK,E)		107	3-596-16		
56	3-318-911-01	(SILVER)(TC-FX220)...KNOB (POWER,L), T MOLD			X-3318-912-1	(BLACK)(TC-FX220:US,Canadian)		108	*3-596-16		
	3-318-911-11	(BLACK)(TC-FX220)...KNOB (POWER,L), T MOLD			X-3318-913-1	(SILVER)(TC-FX220:US,Canadian)		109	3-596-17		
57	*4-902-831-01	(TC-FX220)...JOINT (G), KNOB			X-3318-914-1	(BLACK)(TC-FX220:AEP,UK,E)		110	3-596-10		
58	7-685-146-19	SCREW +BTP 3X8 TYPE2 N-S			X-3318-915-1	(SILVER)(TC-FX205)...PANEL ASSY, FRONT		111	3-596-12		
59	3-540-244-00	SPRING, TENSION			X-3318-916-1	(BLACK)(TC-FX205)...PANEL ASSY, FRONT		112	7-621-77		
60	*3-313-203-00	PLATE, SLIDE			X-3318-917-1	(SILVER)(TC-FX205)...PANEL ASSY, FRONT		113	3-596-11		
61	3-312-441-00	RING, PISTON			X-3318-918-1	(BLACK)(TC-FX205)...PANEL ASSY, FRONT		114	3-596-16		
62	3-318-952-01	LEVER, EJECT			X-3318-919-1	(SILVER)(TC-FX205)...PANEL ASSY, FRONT		115	3-596-16		
63	3-312-458-01	PISTON (A)			X-3318-920-1	(SILVER)(TC-FX205)...PANEL ASSY, FRONT		116	7-621-25		
64	3-570-064-02	SPRING, COMPRESSION			X-3318-921-1	(SILVER)(TC-FX205)...PANEL ASSY, FRONT		117	3-596-17		
65	*3-318-931-01	LEVER (A), BUTTON			X-3318-922-1	(SILVER)(TC-FX205)...PANEL ASSY, FRONT		118	3-596-16		
66	*3-318-933-01	LEVER (C), BUTTON									
67	1-548-589-21	COUNTER, TAPE (MIDDLE TYPE)									
68	*3-318-939-01	BRACKET, COUNTER									
69	*3-318-932-01	LEVER (B), BUTTON									
70	*3-318-934-01	LEVER (D), BUTTON									
71	3-318-941-01	SPACER, LED									
	*A-2056-267-A	(TC-FX220)...PC BOARD ASSY, AUDIO									
	*A-2056-268-A	(TC-FX205)...PC BOARD ASSY, AUDIO									

5-3.



5-4

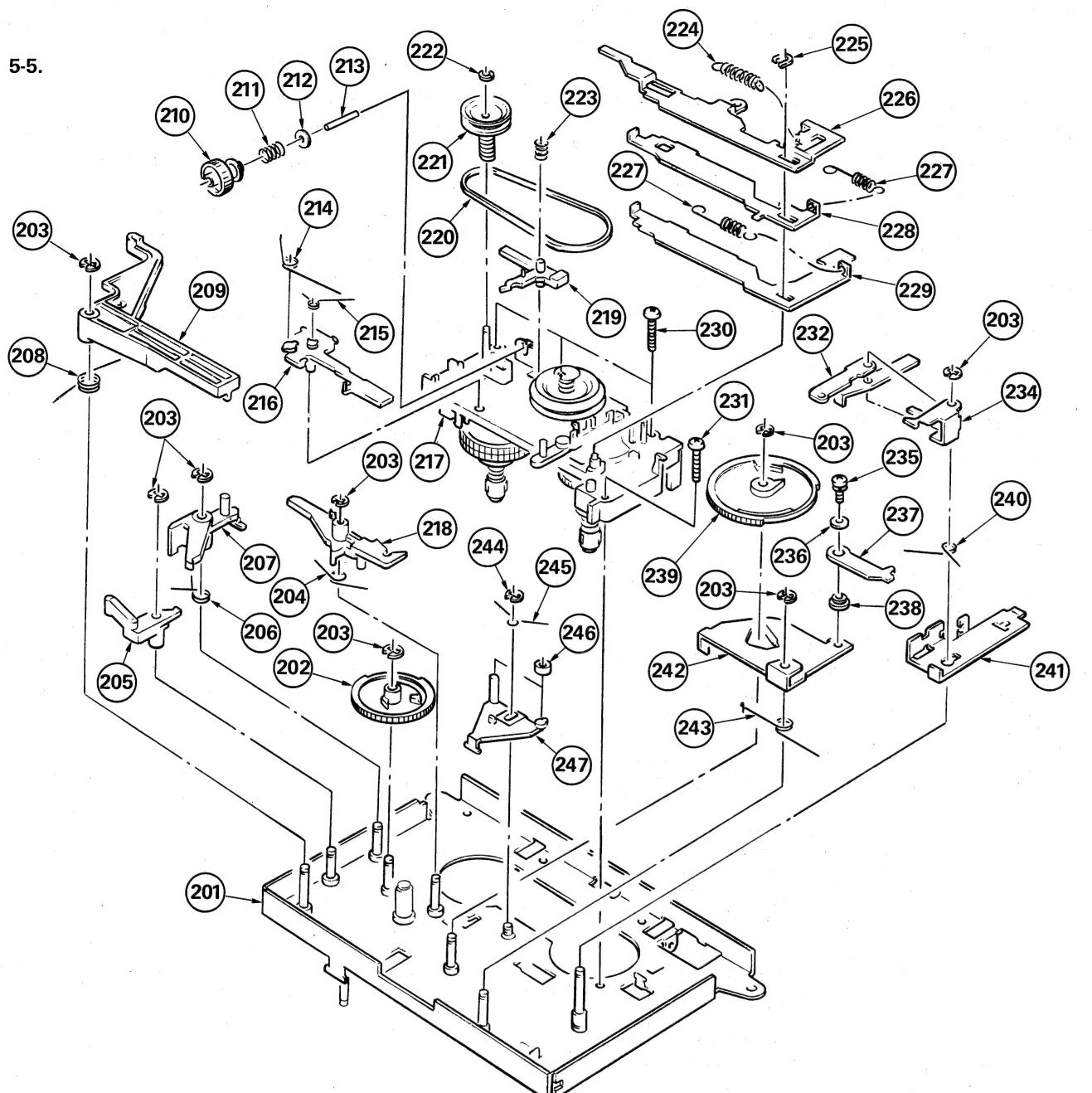


<u>REMARKS</u>	<u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>REMARKS</u>	<u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>REMA</u>
L, CONTROL	101	7-671-113-02	STEAL, BALL 3		119	7-627-452-38	SCREW, PRECISION +K 2X5	
L, CONTROL	102	3-596-158-01	SHIFT (8A), BRAKE		120	3-596-118-01	SPRING	
ROL	103	3-596-140-01	COLLAR (3B), RETURN, PANEL		121	3-596-145-01	COLLAR, TAKE-UP (8A)	
ROL	104	3-596-164-01	TAP TIGHT		122	*X-3596-106-01	TAKE-UP ASSY (8B)	
	105	*3-596-162-01	LEVER		123	3-596-124-01	GEAR, TAKE-UP (8A)	
ASSY, FRONT	106	3-596-141-01	COLLAR, SAFETY (8A)		124	3-596-177-01	WASHER	
(n)	107	3-596-163-01	SCREW (2.6X5)		125	3-596-125-01	SENSOR (8A), REC	
ASSY, FRONT	108	*3-596-160-01	PANEL (8C-EGC), HEAD		126	3-596-119-01	SPRING	
(n)	109	3-596-172-01	RING, E		127	3-596-147-01	RETAINER (9D), PANEL	
ASSY, FRONT	110	3-596-102-01	SPRING		128	3-596-121-01	GUIDE (9A), CASSETTE	
(n)	111	3-596-123-01	BASE (8A), HEAD		129	X-3596-101-01	PINCH ROLLER ASSY (8A)	
ASSY, FRONT	112	7-621-772-70	SCREW +B 2X14		130	3-596-103-01	SPRING	
	113	3-596-117-01	SPRING		131	7-621-773-86	SCREW +P 2.6X4	
ASSY, FRONT	114	3-596-169-01	FW (2.2X6.0X0.4)		132	3-596-178-01	COLLAR	
ASSY, FRONT	115	3-596-165-01	BIND, +		133	*3-596-179-01	ARM	
ASSY, FRONT	116	7-621-255-85	SCREW +P 2X14		134	3-596-146-01	NLW (2.4X6.0X0.50)	
	117	3-596-173-01	WASHER (0.10), HEAD		135	3-596-151-01	PLATE (8A), SP, PACK RETAINER	
	118	3-596-167-01	SCREW (2.6X5)					

<u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>REMARKS</u>	<u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>REMARKS</u>
151	7-621-259-35	SCREW +P 2.6X5		159	3-596-101-01	RETAINER (SP) (9A), CAPSTAN	
152	X-3596-104-1	BUTTON ASSY (8AF), PUSH		160	3-596-122-01	RETAINER (9A), CAPSTAN	
153	7-621-773-86	SCREW +P 2.6X4		161	3-596-166-01	SCREW (2.6X2.5)	
154	*3-596-159-01	BRACKET, AMS (8RA)		162	3-596-139-01	BELT, FLAT	
155	7-685-791-04	SCREW +PTT 2.6X5 (S)		163	X-3596-105-1	FLYWHEEL ASSY (8A)	
156	*3-596-161-01	BRACKET, REC SWITCH (8D)		164	3-596-134-01	BELT, SQUARE	
157	3-596-113-01	REC, JOINT 8A		165	3-596-171-01	PSW (2.6X4.7X0.25)	
158	*3-596-152-01	RETAINER (8A), FLYWHEEL		166	3-596-133-01	GEAR, CAPSTAN (8A)	

SECTION 6  
ELECTRICAL PARTS LIST

5-5.



## ELECTRICAL PARTS

Ref.No.	Part No.	Description
IC303	8-759-705-62	IC NJM4562D-D
IC304	8-759-984-11	IC MB84011B
J301	1-507-797-21	JACK, LARGE TYPE (MIC)
J302	1-507-982-11	(TC-FX205)...JACK (LARGE TYPE) (HEADPHONES)
J303	1-507-908-11	JACK, PIN 4P (LINE IN/LINE OUT)
L101	1-408-924-00	MICRO INDUCTOR 10MMH
L102	1-408-929-00	MICRO INDUCTOR 27MMH
L201	1-408-924-00	MICRO INDUCTOR 10MMH
L202	1-408-929-00	MICRO INDUCTOR 27MMH
LPF101	1-231-388-00	FILTER, LOW PASS
LPF201	1-231-388-00	FILTER, LOW PASS
M501	X-3596-108-1	MOTOR ASSY
Q101	8-729-178-55	TRANSISTOR 2SC2785-E
Q102	8-729-178-55	TRANSISTOR 2SC2785-E
Q103	8-729-178-55	TRANSISTOR 2SC2785-E
Q201	8-729-178-55	TRANSISTOR 2SC2785-E
Q202	8-729-178-55	TRANSISTOR 2SC2785-E
Q203	8-729-178-55	TRANSISTOR 2SC2785-E
Q301	8-729-180-92	TRANSISTOR 2SD809-K
Q302	8-729-173-13	TRANSISTOR 2SB731
Q305	8-729-100-13	TRANSISTOR 2SC2001
Q306	8-729-100-13	TRANSISTOR 2SC2001
Q307	8-729-178-55	TRANSISTOR 2SC2785-E
Q308	8-729-173-37	TRANSISTOR 2SA733-P
Q310	8-729-173-37	TRANSISTOR 2SA733-P
R101	1-247-167-00	CARBON 33K 5% 1/4W
R102	1-247-855-00	CARBON 10K 5% 1/6W
R103	1-247-819-00	CARBON 330 5% 1/6W
R104	1-247-866-00	CARBON 30K 5% 1/6W
R105	1-247-871-00	CARBON 47K 5% 1/6W
R106	1-247-131-00	CARBON 1K 5% 1/4W
R107	1-247-147-00	CARBON 4.7K 5% 1/4W
R108	1-247-143-00	CARBON 3.3K 5% 1/4W
R109	1-247-151-00	CARBON 6.8K 5% 1/4W
R110	1-247-131-00	CARBON 1K 5% 1/4W
R112	1-247-139-00	CARBON 2.2K 5% 1/4W
R114	1-247-099-00	CARBON 47 5% 1/4W
R115	1-247-847-00	CARBON 4.7K 5% 1/6W
R117	1-247-857-00	(TC-FX220)...CARBON 12K 5% 1/6W
R118	1-247-853-00	(TC-FX220)...CARBON 8.2K 5% 1/6W
R119	1-247-816-00	(TC-FX220)...CARBON 240 5% 1/6W
R120	1-247-871-00	CARBON 47K 5% 1/6W
R121	1-247-131-00	CARBON 1K 5% 1/4W
R122	1-247-887-00	CARBON 220K 5% 1/6W

## ELECTRICAL PARTS

Ref.No.	Part No.	Description
R123	1-247-807-00	CARBON 100 5% 1/6W
R124	1-247-882-00	CARBON 130K 5% 1/6W
R125	1-247-849-00	CARBON 5.6K 5% 1/6W
R126	1-247-857-00	CARBON 12K 5% 1/6W
R127	1-247-887-00	CARBON 220K 5% 1/6W
R128	1-247-861-00	CARBON 18K 5% 1/6W
R129	1-246-533-00	CARBON 330K 5% 1/4W
R130	1-247-888-00	CARBON 240K 5% 1/6W
R131	1-247-888-00	CARBON 240K 5% 1/6W
R132	1-247-859-00	CARBON 15K 5% 1/6W
R133	1-247-850-00	CARBON 6.2K 5% 1/6W
R134	1-247-807-00	CARBON 100 5% 1/6W
R135	1-247-867-00	CARBON 33K 5% 1/6W
R136	1-247-875-00	CARBON 68K 5% 1/6W
R137	1-247-898-00	CARBON 620K 5% 1/6W
R138	1-247-813-00	CARBON 180 5% 1/6W
R139	1-247-821-00	CARBON 390 5% 1/6W
R140	1-247-835-00	CARBON 1.5K 5% 1/6W
R141	1-247-863-00	CARBON 22K 5% 1/6W
R142	1-247-847-00	CARBON 4.7K 5% 1/6W
R143	1-247-855-00	CARBON 10K 5% 1/6W
R144	1-247-879-00	CARBON 100K 5% 1/6W
R145	1-247-885-00	CARBON 180K 5% 1/6W
R146	1-247-881-00	CARBON 120K 5% 1/6W
R147	1-247-157-00	CARBON 12K 5% 1/4W
R148	1-247-115-00	CARBON 220 5% 1/4W
R149	1-247-839-00	CARBON 2.2K 5% 1/6W
R150	1-247-853-00	CARBON 8.2K 5% 1/6W
R151	1-247-861-00	CARBON 18K 5% 1/6W
R152	1-247-843-00	CARBON 3.3K 5% 1/6W
R153	1-247-851-00	CARBON 6.8K 5% 1/6W
R154	1-247-855-00	CARBON 10K 5% 1/6W
R155	1-247-863-00	CARBON 22K 5% 1/6W
R156	1-247-879-00	CARBON 100K 5% 1/6W
R157	1-247-879-00	CARBON 100K 5% 1/6W
R158	1-247-855-00	CARBON 10K 5% 1/6W
R159	1-247-855-00	CARBON 10K 5% 1/6W
R160	1-247-861-00	CARBON 18K 5% 1/6W
R301	1-806-968-11	(TC-FX205)...THERMISTOR (POSITIVE)
R302	1-806-968-11	(TC-FX205)...THERMISTOR (POSITIVE)
R304	1-247-131-00	CARBON 1K 5% 1/4W
R305	1-247-131-00	CARBON 1K 5% 1/4W
R306	1-247-131-00	CARBON 1K 5% 1/4W
R307	1-247-131-00	CARBON 1K 5% 1/4W
R308	1-247-079-00	CARBON 4.7 5% 1/4W

## ELECTRICAL PARTS

Ref.No.	Part No.	Description
R309	1-247-867-00	CARBON 33K 5% 1/6W
R310	1-247-867-00	CARBON 33K 5% 1/6W
R311	1-247-855-00	CARBON 10K 5% 1/6W
R312	1-247-857-00	CARBON 12K 5% 1/6W
R313	1-247-853-00	CARBON 8.2K 5% 1/6W
R314	1-247-815-00	CARBON 220 5% 1/6W
R315	1-247-123-00	CARBON 470 5% 1/4W
R316	1-247-859-00	CARBON 15K 5% 1/6W
R317	1-247-859-00	CARBON 15K 5% 1/6W
R318	1-247-115-00	CARBON 220 5% 1/4W
R319	1-247-855-00	CARBON 10K 5% 1/6W
R321	1-247-847-00	CARBON 4.7K 5% 1/6W
R323	1-247-855-00	CARBON 10K 5% 1/6W
R325	1-247-859-00	CARBON 15K 5% 1/6W
R326	1-247-855-00	CARBON 10K 5% 1/6W
R327	1-247-883-00	CARBON 150K 5% 1/6W
R328	1-247-139-00	CARBON 2.2K 5% 1/4W
R329	1-247-123-00	CARBON 470 5% 1/4W
R330	1-247-123-00	CARBON 470 5% 1/4W
R331	1-247-123-00	CARBON 470 5% 1/4W
R332	1-247-123-00	CARBON 470 5% 1/4W
R333	1-247-123-00	CARBON 470 5% 1/4W
R334	1-247-139-00	CARBON 2.2K 5% 1/4W
RV101	1-230-716-11	RES, VAR, SLIDE 20K (REC LEVEL)
RV103	1-228-994-00	RES, ADJ, CARBON 10K (PB LEVEL Adj.)
RV104	1-228-995-00	RES, ADJ, CARBON 22K (REC LEVEL Adj.)
RV105	1-228-998-00	RES, ADJ, CARBON 220K (REC BIAS Adj.)
RV201	1-230-716-11	RES, VAR, SLIDE 20K (REC LEVEL)
RV203	1-228-994-00	RES, ADJ, CARBON 10K (PB LEVEL Adj.)
RV204	1-228-995-00	RES, ADJ, CARBON 22K (REC LEVEL Adj.)
RV205	1-228-998-00	RES, ADJ, CARBON 220K (REC BIAS Adj.)
S301	1-554-033-00	SWITCH, SLISE (RECORD/PLAY BACK)
S302	1-570-154-11	SWITCH, PUSH (4 KEY)(DOLBY NR)
S303	1-570-154-11	SWITCH, PUSH (4 KEY)(TYPE 1)
S304	1-570-154-11	SWITCH, PUSH (4 KEY)(TYPE 2)
S305	1-570-154-11	SWITCH, PUSH (4 KEY)(TYPE 4)
S306	1-570-103-11	(TC-FX220)...SWITCH, PUSH(1 KEY)(POWER)
S501	1-570-286-11	SWITCH, LEAF (RECORD)
S502	1-570-286-11	SWITCH, LEAF (HEAD)
S901	1-570-046-21	(TC-FX220:E)...SWITCH, VOLTAGE CHANGE
T302	1-433-296-11	TRANSFORMER, BIAS OSCILLATION
T901	1-448-093-11	(TC-FX220:US,Canadian)
		...TRANSFORMER, POWER
T901	1-448-094-11	(TC-FX220:AEP,UK)...TRANSFORMER, POWER
T901	1-448-095-11	(TC-FX220:E)...TRANSFORMER, POWER

## ACCESSORY &amp; PACKING MATERIAL

Part.No.	Description
1-551-734-11	(TC-FX220)...CORD, CONNECTION (RK-74A)
3-318-957-01	(TC-FX220)...INDIVIDUAL CARTON
3-318-958-01	(TC-FX220)...CUSHION (LEFT), LOWER
3-318-959	